

Figure IA

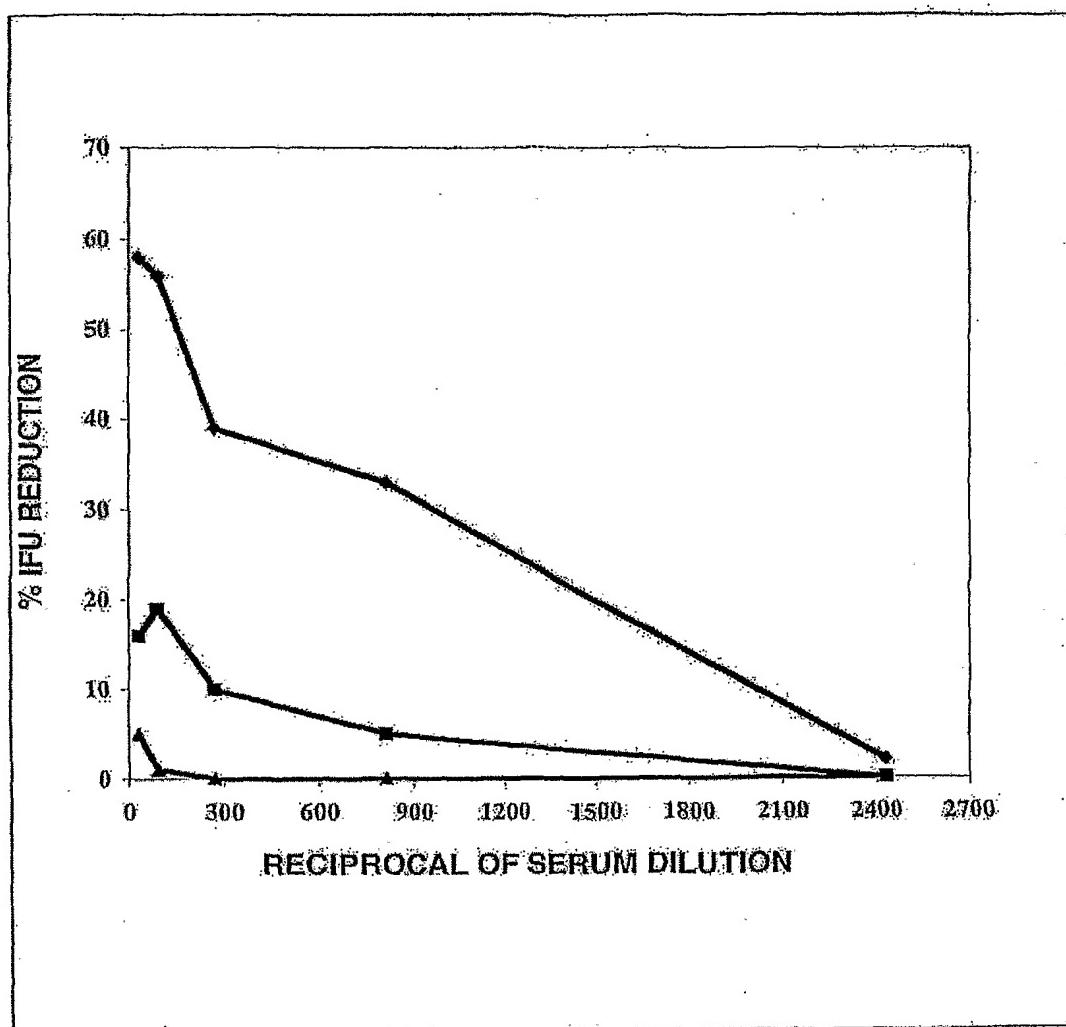
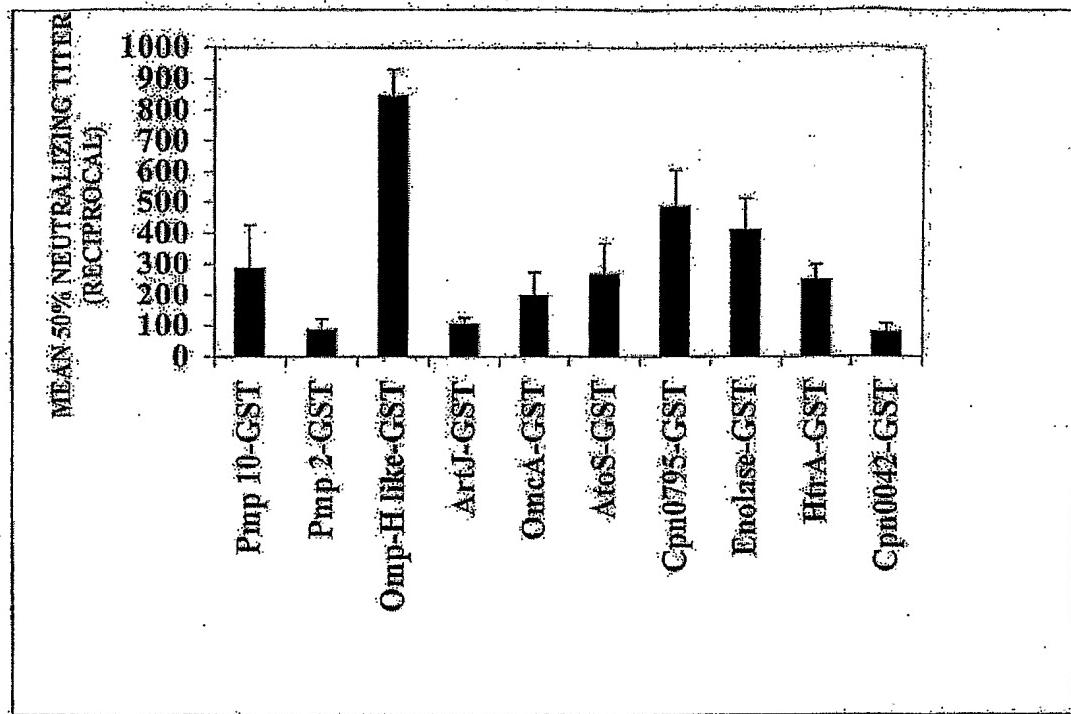


Figure 1B



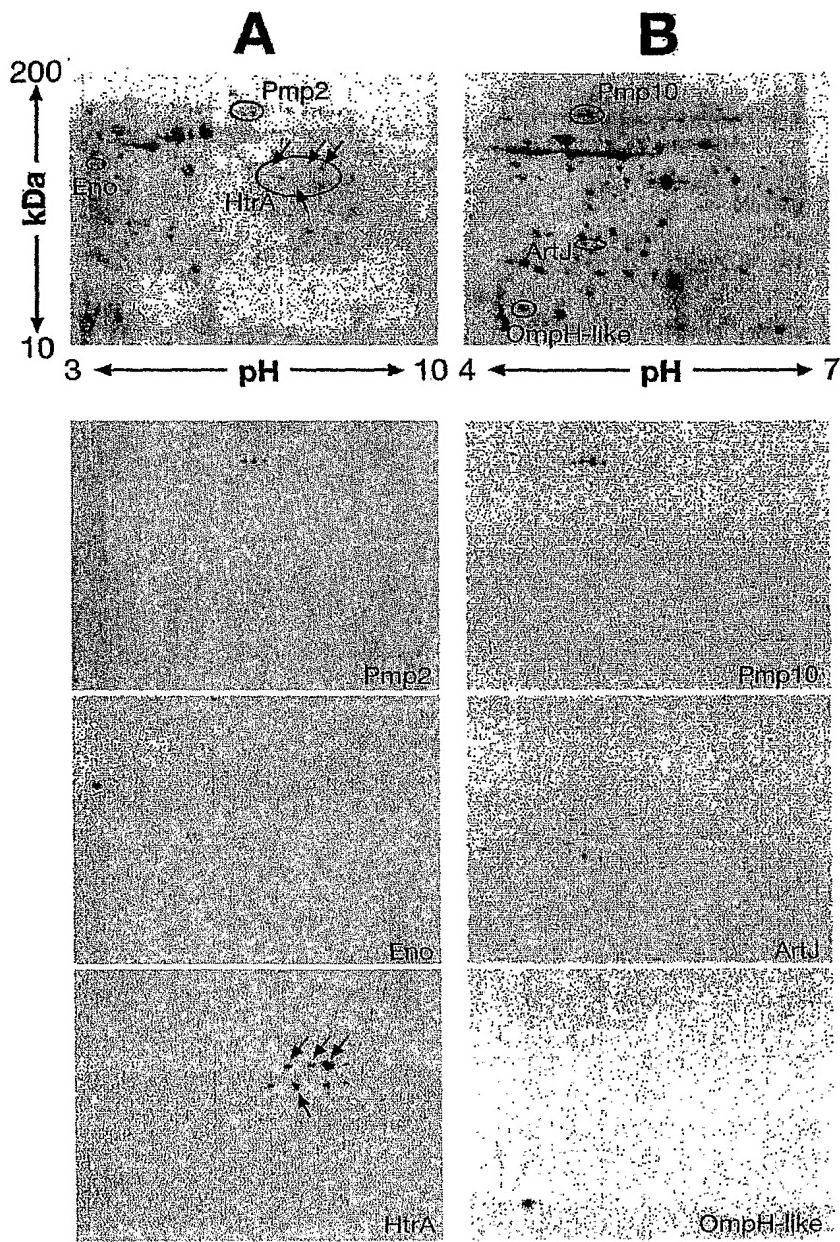


Figure 2

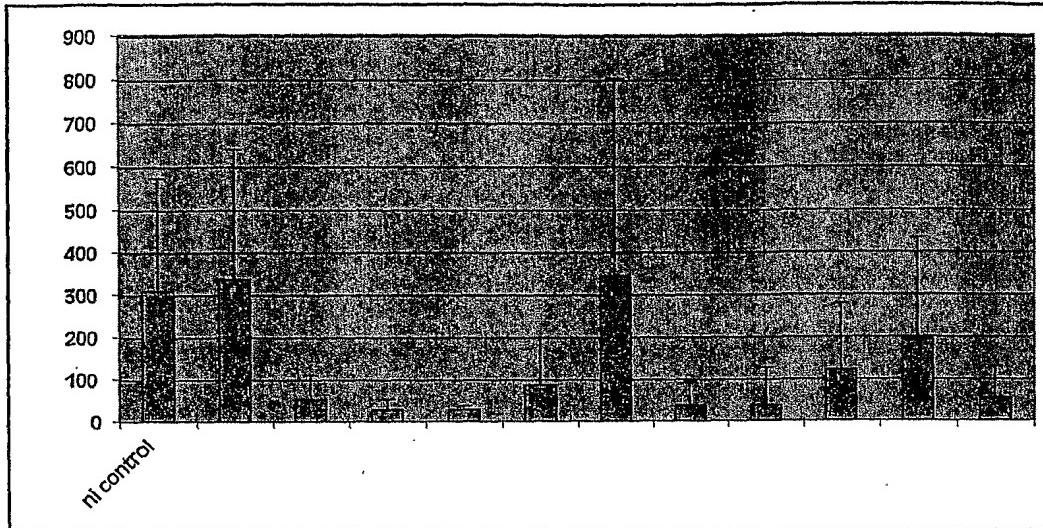


Figure 3. Mean numbers of *C.pneumoniae* IFU recovered from equivalent spleen samples from immunized and mock-immunized hamsters following a systemic challenge. Standard deviation values are shown above the bars. Antigens which induced significant protection are highlighted with an asterisk above the corresponding bar. All antigens were delivered in Freund's adjuvant. n.i. = non immunized controls

Figure 4

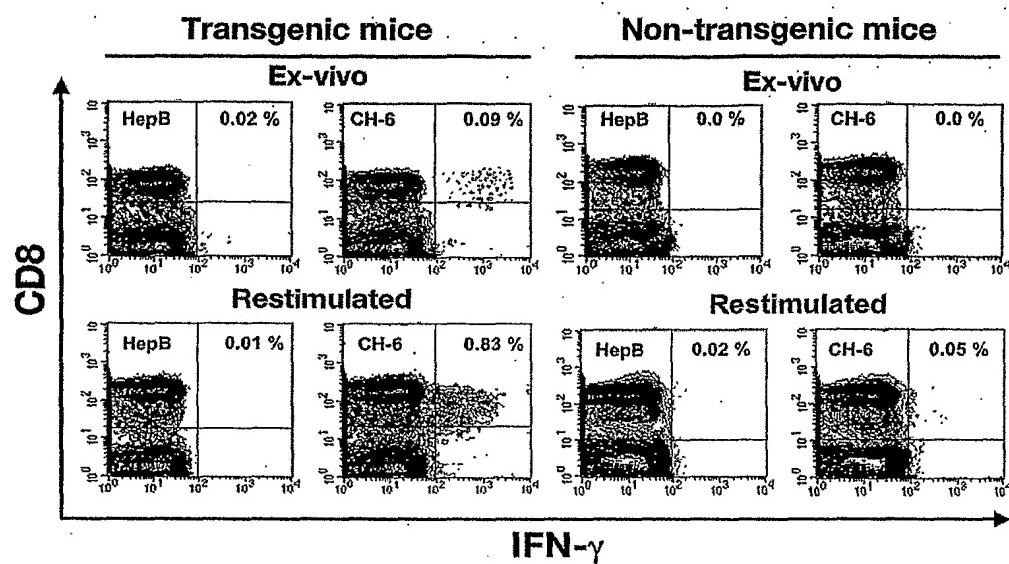
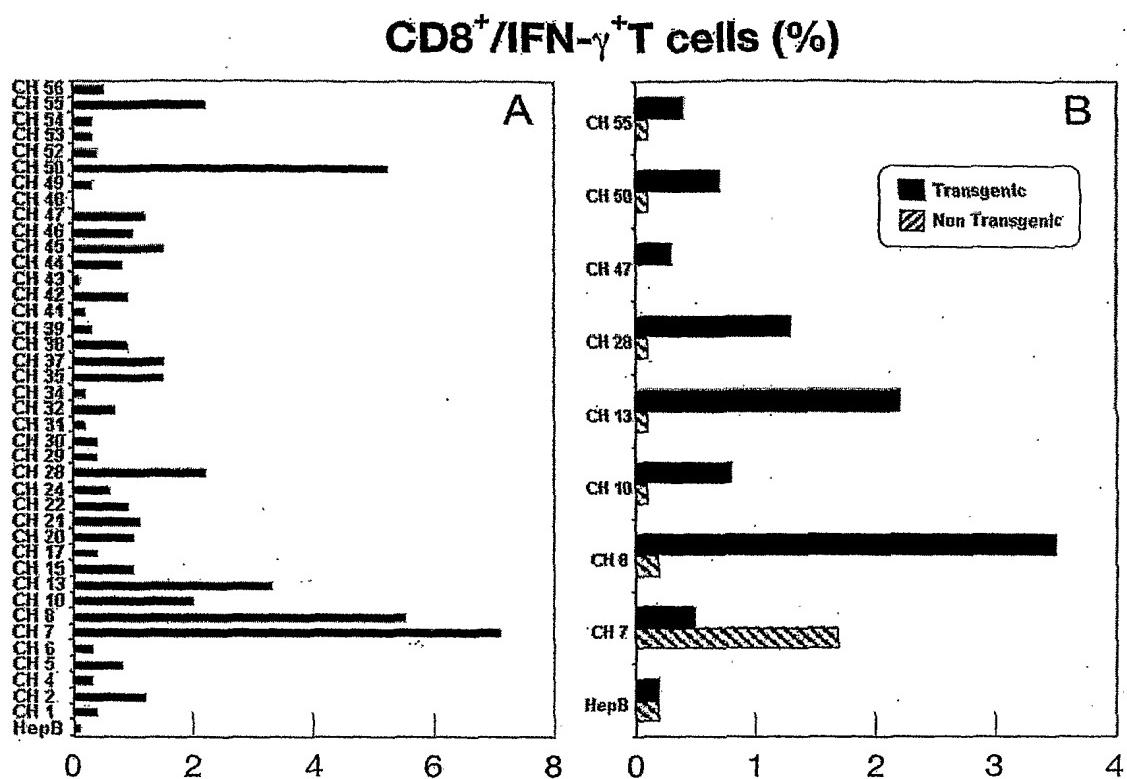


Figure 5



This Alignment shows a new family of proteins expected to constitute a system of antigens probably delivered on the Cpn surface or secreted by a type V (autotransporter) secretion mechanism

Fig. 6

N-terminal alignment

Cpn0796	MQPCLNMSIVRNSALPLPCLSRLSETFKKVRSHMKFMKVLTPIYRKDLWVTAFLLLTAIPG	60
Cpn0798	-----MKKTCCQNYRSIGVVF-----	27
Cpn0799	-----MAAIKQIILRSMLSQSSLWMVLFSLYSLSG-----	49
Cpn0797	-----MSKIKVLGHLTLCFLFRGVLCAAALSN-----	46
Cpn0794	-----IGYASTSQESPYQKSIED-----LIFMIPSQE	32

Cpn0796	SFAHTLVDIAGEPRH-AAQATGVSGDGK[REDACTED]MKVPDDPF-----	119
Cpn0798	LFAGHFIDIG-TSGL-YSWARGVSGDGKRV[REDACTED]YEGGN-----	78
Cpn0799	WDHWGKTTLSRLSNK-KASAKAVSGTGATT[REDACTED]FIKDTWSRTY[REDACTED]RNWNYWGTKELPTSSWV-----	108
Cpn0797	WKGYTFDLELLSKEGWSEAHAVSGNGSR[REDACTED]ASGAGQGSV[REDACTED]IWESHLIK[REDACTED]-----	103
Cpn0794	SFADSLIDLNGLDP-----	62

Cpn0796	PQCSVYPNGITPDGTWVGTNYAIGMGSV[REDACTED]KWVNGK[REDACTED]SE[PMLPDTLD-----SVASAVSADGR	179
Cpn0798	PRSEALVFKA[REDACTED]YDGSV[REDACTED]GIS-DQDPSCR[REDACTED]KWVNGA[REDACTED]V[REDACTED]IFSEGMO-----SFAEGVSSDGK	137
Cpn0799	KKS--KATGISSDG[REDACTED]AGI[REDACTED]VENELSQSF[REDACTED]TWKNNE[REDACTED]YL-PST-WAVQ-----SKAYGISSDG[REDACTED]	165
Cpn0797	--EASSAEGISKDG[REDACTED]GWSDTREGYT[REDACTED]VFDGRD[REDACTED]K[REDACTED]ATYS-----VARGVSGDG[REDACTED]	162
Cpn0794	-----SVECLSGDGA[REDACTED]FSGYFTKAGSTPV[REDACTED]EYQPFKYDVSKKTF[REDACTED]TSVETANQSGYAYGI[REDACTED]SYDGT	107

Cpn0796	[REDACTED]GGRNINNLGAS---V[REDACTED]KWEDE[REDACTED]-VITQLPSLPDAM-NACVNGIISDGSI[REDACTED]VGTMVDV	233
Cpn0798	THV[REDACTED]CLYSDDTETN---F[REDACTED]KWD[REDACTED]-GMVLPNL[REDACTED]PEDR-HSCAWDASEDGS[REDACTED]VGDAMGS	192
Cpn0799	YVGS-AKDAWSRT[REDACTED]F[REDACTED]KWTGH-EAQVLP-VGWAV-KSVANSVSANGS[REDACTED]YGSVQDA	218
Cpn0797	[REDACTED]LVSATARGEDY[REDACTED]GWQVGVKWEKG-KIKQLKLLPQGL-WSEANAISEDGTWV[REDACTED]URGEIS	220
Cpn0794	[REDACTED]VTCISL[GAGKYN---GAKWSAD[REDACTED]TPLTGITGGTSHTEARAISKDTON[REDACTED]EGFSYDA	163

Cpn0796	SWRNT[REDACTED]QWIG--DQLSV[REDACTED]TT--SVASAISTDGTV[REDACTED]VGGSE-NADSQT[REDACTED]AYKN	288
Cpn0798	EEIAK[REDACTED]YWKD--GEQHL[REDACTED]SN[REDACTED]PAKR-SSAHAVSKPGSF[REDACTED]VGEFI-SEEDEV[REDACTED]VYHN	248
Cpn0799	SGILY[REDACTED]KWEGL-NTITH[REDACTED]YS--AIAKAVSNGKV[REDACTED]VGRSE-TYYGEV[REDACTED]CHKN	273
Cpn0797	RNHIV[REDACTED]KWNK--NAVYS[REDACTED]SV--ASAEAI[REDACTED]SANGKV[REDACTED]VGWST-TNNGET[REDACTED]MHKD	275
Cpn0794	SGQPK[REDACTED]QWASGATTVTQ[REDACTED]AD[REDACTED]GSRSSYAYAISDDGT[REDACTED]VGSMESTITRKT[REDACTED]KWVN	223

Cpn0796	[REDACTED]GV[REDACTED]G[REDACTED]FYSLAHAVS[REDACTED]SDGSV[REDACTED]VGVS-----TNSEHRY[REDACTED]QYADGO[REDACTED]V	343
Cpn0798	[REDACTED]GV[REDACTED]K[REDACTED]DYSVATGV[REDACTED]SRDGKV[REDACTED]V[REDACTED]GHS-----TRTDGEY[REDACTED]KYVDGR[REDACTED]I	303
Cpn0799	[REDACTED]GV[REDACTED]S[REDACTED]SYSAAKGVSATGKV[REDACTED]V[REDACTED]GMS-----TTANGKL[REDACTED]KYVGRG[REDACTED]I[EYSW	328
Cpn0797	[REDACTED]ET[REDACTED]H[REDACTED]GFSVATGV[REDACTED]SADGRA[REDACTED]V[REDACTED]GFS-----AVKTGEI[REDACTED]YYAEGE[REDACTED]E	330
Cpn0794	[REDACTED]NVPTY[REDACTED]DASTGLYISDGTV[REDACTED]VGAANTATV[REDACTED]TNGNQES[REDACTED]MYKDNO[REDACTED]K-----	277
Cpn0795	[REDACTED]	

Cpn0796	PESYAQGVSGDGKV[REDACTED]VGRQVPSGDW[REDACTED]LCPFQAPSPAPVHGGSTVVTSQNPRGMVDIN	403
Cpn0798	SASFAGV[REDACTED]SDDGK[REDACTED]V[REDACTED]GKFETELGEC[REDACTED]TYLDD-----	337
Cpn0799	KEACANAVSIDGE[REDACTED]V[REDACTED]VQSE-----	349
Cpn0797	EEARVFDISSEGND[REDACTED]FOSIKTDAGAERA[REDACTED]RAYLFHIHK-----	365
Cpn0795	TSSTAKTVSPDGKV[REDACTED]MGRSQIADGSW[REDACTED]MCHTDFSSNNVLFDLN	

FIG. 7

Cpn0796

1	MKF <small>M</small> KVLTPW	IYRKDLWVTA	FLLTAIPGSF	AHTLVDIA	TGV
51	SGDGKIVIGM	KVPDDPFAIT	VGFQYIDGHL	QPLEAVRPQC	SVYPNGITPD
101	GTVIIVGTYA	IGMGSVAVKW	VNGKVSELPM	LPDTLDSVAS	AVSADGRVIG
151	GNRNIINLGAS	VAVKWEDDVII	TQLPSLPDAM	NACVNGISSD	GSIIIVGTMVD
201	VSWRNTAVQW	IGDQLSVTGT	LGGTTSVASA	ISTDGTIVG	GSENAQDSQTH
251	AYAYKNGVMS	DIGTLGGFYS	LAHAVSSDGS	VIVGVSTNSE	HRYHAFQYAD
301	GQMVDLGLTG	GPESYAQGVS	GDGKVIVGRA	QVPSGDWHAF	LGPFQAPSPA
351	PVHGGSTVVT	SQNPRGMVDI	NATYSSLIKNS	QQQLORLILIC	HSAKVESVSS
401	GAPSFTSVKG	AISKQSPAVQ	NDVOKGTFLS	YRSQVHGNVQ	NOQLLTGAEM
451	DWKLASAPKC	GFKVALHYGS	QDALVERAAL	PYTEOGLGSS	VLSGFCCQVQ
501	GRYDFNLGET	VVLQPFMGIQ	VLHLSREGYS	EKNVRFPVSY	DSVAYSAATS
551	FMGAHVFAISL	SPRMSTAATT	GVERDILNSHI	DEFKGVSAM	GNFVLENSTV
601	SVLRPFASIA	MYYDVRQQQL	VTLSVVMNQQ	PLTGTLSLVS	OSSYNLSF

Leader peptide 1-31

Or, alternatively:

Leader peptide 2 1-47

b-propeller domain 32-342

Or, alternatively:

b-propeller domain2 48-342

linker region 343-364

helix 365-385

beta barrel 386-648

FIG. 8

Alignment of the C-terminal (beta barrel) domains of the proteins encoded by the *C.pneumoniae* genes Cpn0795 (7016) and Cpn0796 (7107)

7106	-----[REDACTED]TSSTAKTVSPDGKVIMGRSQIADGSWHAFMCHTDFFSSNNVLFLDLN
7107	YADGQ[PESYAQGVSGDGKVIVGRAQVPSGDWHAFLCPFQAPSPAPVHGGST * * * * * . . * : * * * * * : * : * . * * * * : * : * :
7106	TYKTLRENGRQLNSIFNLQNMMQLQRASDHEFTTEFGRSNIALGAGLYVNALQNLPSNLAAQ
7107	VVTSQ--NPRGMVDINATYSSLKNSQQQLQRLLTQHSAKVESVSSGAPSFTSVKGAI SKQ . . : . * * : . * . . : . : . : . : * : . : . : . : . : .
7106	YFGIAKYKIRPKYRLGVFLDHNFSSHVPNNFNVSHNRLWMGAFIGWQDSDALGSSVKVSFG
7107	SP----AVQNDVQKGTFLSYRSQVHG---NVQNQQLLTGAFMDWKLASAPKCGFKVALH . . : . : . : * . * . . . * . . . * . : * . : * . : . * . . . * : .
7106	VGKQKATITREQLENTEAGSGESEHFEGVAAQIEGRYGRKSLGGHV RVQPFLGLQFVHTRK
7107	YGSQDALVERAALPYTEQGLGSSVLSGFGGQVQGRYDFNLGETVVLQPFMGTQVLHLSRE **.**.* : * * * * . * : . * . : * : * . . * * : * : * : * : * : * :
7106	EYTENAVQFPVHYDPIDYSTGVVYLIGIGSHIALVDSLHEVGTRMGMEQNFAAHTDRFSGSI
7107	GYSEKNRFPVSYDSVAYSAATSFMGAHVFAISLSPKMSTAATLGVERDLN SHIDEFKGSV *: * : * : * * * . : * : * : . : * : . : . : * : * : * : * : * : * : * :
7106	ASIGNFVFEKLDVTHTRAFAEMRVNYELPYLQSLNLILRVNQQPLQGVGMGFSSDLRYALG
7107	SAMGNFVLENSTVSVLRPFASLAMYYDVRQQQLVTLSVVMNQQPLTGTLSLVSQSSYNL S : : * * * : * : * . * . : : * : * : * : * : * : * : * : * : * : * .
7106	F
7107	F
	*

FIG. 9